



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,204	12/20/2000	Glen Fox	FUJ 00-01013RAM	7135

7590 10/31/2003
William J. KUBIDA, Esq.
Hogan & Hartson, LLP
Suite 1500
1200 17th Street
Denver, CO 80202

EXAMINER

NGUYEN, KHIEM D

ART UNIT PAPER NUMBER

2823

DATE MAILED: 10/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/742,204

Applicant(s)

FOX ET AL.

Examiner

Khlem D Nguyen

Art Unit

2823

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17, 19-24 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19-24 and 27-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 072303.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

The non-final rejection as set forth in paper No. (15) is withdrawn in response to applicants' amendments.

A new rejection is made as set forth in this Office Action.

Claims (1-17, 19-24, and 27-31) are pending in the application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-6, 12-14, 21, 23, 24, 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Mochizuki et al. (U.S. Patent No. 6,190,957).

In re claims 1, 12, 27, and 30, Mochizuki discloses a method for fabrication of ferroelectric capacitor elements of an integrated circuit comprising the steps of: deposition of an electrically conductive bottom electrode layer (FIG. 24: 17); deposition of a layer of ferroelectric dielectric material (FIG. 24: 18); annealing the layer of ferroelectric dielectric material to form perovskite phases with a first anneal (col. 34, lines 35-39); deposition of an electrically conductive top electrode layer (FIG. 24: 19); annealing the layer of ferroelectric dielectric material with a second anneal (col. 34, lines 40-44), the second anneal changing the layer of ferroelectric material into grains having a

columnar structure, being performed by rapid thermal annealing and performed after the step of deposition of an electrically conductive top electrode layer; etching the electrically conductive top electrode layer (col. 34, lines 45-49), and annealing the layer of ferroelectric dielectric material with another anneal after etching the electrically conductive top electrode layer (col. 34, lines 44-51).

In re claims 2, 3, and 13, Mochizuki discloses wherein the electrically conductive bottom electrode layer comprises platinum (col. 34, lines 30-34).

In re claims 4, 14, 23, 28, and 31, Mochizuki discloses wherein the ferroelectric dielectric layer comprises PZT (col. 34, line 35-51).

In re claims 5, 6, and 29, Mochizuki discloses wherein the electrically conductive top electrode layer comprises Iridium Oxide (IrO_2) (col. 36, lines 21-22).

In re claim 21, Mochizuki discloses the process of Claim 12, further comprising the step of: depositing an encapsulation layer (FIG. 24: 75); and wherein the second anneal is performed after the step of depositing an encapsulation layer (col. 34, line 60 to col. 35, line 14).

In re claim 24, Mochizuki discloses wherein the step of depositing the ferroelectric dielectric layer is performed by sputtering (col. 34, lines 35-51).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-11, 15-17, 19-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mochizuki et al. (U.S. Patent No. 6,190,957) as applied to claims 1-6, 12-14, 21, 23, 24, 27-31 above.

In re claims 7-11, and 22, Mochizuki discloses wherein the first anneal comprises a rapid thermal anneal (RTA) at 800° C for 10 seconds (col. 34, lines 38-41) and wherein the second anneal is performed slowly at 600° C but fails to explicitly disclose the temperature ranges and at a time duration as recited by Applicants. However, there is no evidence indicating the temperature ranges and the time duration are critical and it has been held that it is not inventive to discover the optimum or workable range of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05.

In re claims 15-17 and 19-20, Mochizuki discloses wherein the first and second anneal are performed in an environment comprising oxygen, the oxygen having partial pressure of 10 Torr and wherein the first anneal is performed in an environment comprising a mixture of oxygen and inert gas (col. 34, lines 39-59 and col. 36, lines 41-50). Furthermore, there is no evidence indicating that the amount of oxygen partial pressure is critical and it has been held that it is not inventive to discover the optimum or workable amount of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05. Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising there from. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the

chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

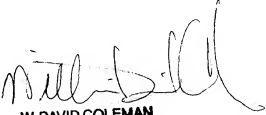
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D Nguyen whose telephone number is (703) 306-0210. The examiner can normally be reached on Monday-Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-9179 for regular communications and (703) 746-9179 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.N.
October 17, 2003



W. DAVID COLEMAN
PRIMARY EXAMINER